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When drivers' training-courses are shared by different trainers

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This paper aims to analyze the consequences of a specific organization of work in driving schools: in France, in some driving schools, several trainers may successively train a single trainee. Consequences on training duration and on trainer activity are analyzed based on data collected in the course of three studies. We show that the duration of driver training increases in the case of multiple trainer switches during a training course. Trainer switches during the course also have consequences on the activity of trainers, since they must, as a result, engage in asynchronous cooperation. We analyzed this cooperation from two points of view: one focused the use of a collective tool, the Trainee Record Form (TRF) designed as a tool for communication between trainers of the same trainee, as well as with the trainee; and one focused on the characteristics of trainer diagnosis at the beginning of a lesson, when he trains someone for the first time. We observe various uses of the TRF, ambiguous written comments that may be read by the future trainer or a lack of collective use. Our data also suggests difficulties in elaborating a diagnosis: with a new trainee, trainers systematically delayed their decisions regarding didactical objectives: to carry these out, they needed to watch the trainee drive. The results of these three studies are discussed in terms of their consequences for training organization and training of driving trainers.

Young drivers are over-represented in road casualty statistics. Within the member countries of OECD, 18% to 30% of drivers killed were between 15 and 24 years of age, although this age group represents 9% to 13% of the total population in these countries (OECD, 2006).

Many studies have considered the issue of driver training for road safety, asserting that trainers' competencies are an important factor, among others, in skill acquisition by trainee drivers (MERIT, 2005). However, few studies have focused on the activity of trainers, and these have always been carried out from an individual point of view (Groeger & Clegg, 2008; Rismark & Solvberg, 2007). Currently, in France, several trainers may be involved in training a single person. This situation can be described as a case of collective, asynchronous collaboration (Beuscart-Zéphir, Pelayo, Anceaux, Maxwell, & Guerlinger, 2006). This may create problems both to set up the training course and to coordinate the activities of individual trainers.

In this paper, we consider two goals successively: identifying the consequences of trainees being trained by several trainers, and analyzing how these trainers coordinate their individual activities with respect to each other. Two points are examined: the use of a collective tool and its role in supporting trainer cooperation and diagnoses when "splitting" a trainee with several colleagues. We will present data from three studies focusing on such cases of asynchronous cooperation.

1. MODELS OF DRIVING AND DRIVER TRAINING

Several hierarchical models have been proposed to describe drivers' tasks and skills (Michon, 1985; Van Der Mollen & Böttcher, 1988). The European project Gadget (1999) offers a conceptual framework to describe essential goals and contents of driver education through a matrix called "Goals for Driver Education" or GDE (Hatakka, Keskinen, Gregersen, & Glad, 1999), which integrates both the principles put forth by these authors and the theories (in traffic psychology, psychology of learning and education) of their contemporaries. This model describes what the driver must learn according to four hierarchical levels:

— The "highest level" (Hatakka et al., 1999, p. 36) is concerned with life goals and skills involved in everyday living. It covers the importance of cars and driving for personal development, as well as the skills involved in safety control. Varied research has stressed that lifestyle factors and values may affect driver behavior.

— The following level (termed the "third level") is related to the goals and context of driving, when "drivers decide for what purpose, where, with whom, with what and at what time to drive" (op. cit.). It refers to navigational and planning tasks, to journey-related goals and the overall context of driving.

— The "second level", mastering the traffic situation, is concerned with the adaptation of drivers' personal behavior in response to the behavior of other road-users and to the traffic environment. This includes making their behavior predictable to others.

— The "lowest level" refers to steering the vehicle *per se*. It mainly concerns controlling the speed, direction, and position of the vehicle.

Driving education affects learners in each of these levels, according to three axes: mastering knowledge and skills; identifying and avoiding risk factors; taking notice of personal elements.

This model is used in European research to propose training situations (TRAINER, 2001). It is also used to define training content for driving trainers in European training structures (MERIT, 2005).

In France, the driver training curriculum focuses on the two lowest levels of the GDE model. It subdivides training according to the various goals which need to be achieved. These define course contents and organize trainee progression: *mastering the vehicle with slow or moderate speed in low or zero traffic* (named “step 1”), *choosing position on the roadway, crossing an intersection or changing directions* (“step 2”), *driving under normal conditions on the road and in a town* (“step 3”) and *knowing driving situations which present particular difficulties* (“step 4”). Each goal is divided into sub-goals. For example step 1 includes nine sub-goals, which include “*knowing the main parts and controls of the car*”, “*setting up the driver’s seat*”, “*looking around oneself*”, etc.

This prescribed progression also structures the Trainee Record Form (TRF), a booklet which the trainer must fill in at the end of each lesson. In turn, the trainee must hand it over to the trainer at the beginning of every new lesson. Thus, the TRF is also designed as a communication tool between trainers.

TRF consists of 13 pages: following some information regarding the trainee and training agenda, the core of the TRF is devoted to the four steps described above and to their sub-goals. Trainers may write comments in front of each sub-goal, and must fill in a grid to allow an overall evaluation of each step. Finally, some space is available for comments and sketches.

2. THE ACTIVITY OF DRIVING TRAINERS

As Rogalski (2003; 2005) points out, trainer activity can be studied from a triple point of view: it involves managing a dynamic process, it is a didactical activity and it is also a professional activity. We specify this framework for the case of driver training.

2.1. Managing a dynamic process

Trainer interventions interact with the dynamics of trainee development. Thus, trainers must elaborate a representation of the dynamic relationship between trainee development and competencies to be acquired, as well as of the effects of their interventions. In driver training, this first dynamic process is embedded within a second process, since driving itself also involves managing a dynamic environment (e.g. Hoc, 1993, 1996). Thus, the trainer gathers information on trainees during their activity (information gathering and actions to steer the vehicle) and on interactions between the trainee’s driving activity and the road environment. From this,

trainers elaborate a diagnosis / prognosis of the situation and decide to carry out appropriate actions (verbal interventions, actions in steering the vehicle). In this view, diagnosis is an activity oriented towards decision-making and it is made up of several diagnosis loops, each characterized by various purposes and perspectives as regards the evolution of the process (Hoc & Amalberti, 1995).

2.2. It is a didactical activity

In driver training the objective is not to travel: the didactical activity involves selecting driving situations according to the trainer’s representation of the progression of trainee competencies, and ensuring proper guidance. These interventions refer to managing the didactical plan elaborated by the trainers —instructions related to the specific driving environment chosen for the lesson, according to trainee progression— and to guidance, defined by Bruner (Wood, Bruner, & Ross, 1976; Bruner, 2002) as the means used by an expert to help someone who is less expert than himself.

Part of a trainer’s competencies concerns both the diagnosis of trainee competencies and of their evolution, the choice of various didactical driving situations to foster this development and guidance activities during these situations.

2.3. It is a professional activity

Finally, trainers are involved in an organizational system: they have to comply with formal constructs (e.g. the prescribed training curriculum) and operate in a given organization that may require cooperation. As in other training situations, trainers may be involved in cooperative didactical actions when a trainee follows successive training lessons with several different trainers. In such situations, assessing and influencing trainee progression is a duty shared between two or more trainers, operating in asynchronous cooperation. Moreover, formal constructs which are “objectified” in artifacts may constitute mediation tools for this cooperation (Schmidt, 1999). In this paper the use of the TRF will be analyzed following this view.

The efficiency of a collective activity is related to the elaboration of « shared mental models » (Cannon-Bowers, Salas & Converse, 1990) which, in the case of driver training, involves the distribution of knowledge about what “driving” is, what is “training to drive” (with various goals and difficulties according to trainee progression) and about the trainee’s presently acquired competencies in driving. In a synthesis focusing on collective activities, Navarro (2001) underlined that collective activity is more efficient when interactions between its various actors are not mediated. In the same line, Karsenty (2000) stressed that face-to-face situations favor the elaboration of a shared occurring mental model of the problem because they allow explanations, which

are crucial for the identification of misunderstandings and the identification of shared knowledge. In complementary studies, carried out in the healthcare domain, other authors describe situations where exchanges of patient-related information are mediated, showed that complex diagnosis activities required face-to-face interactions (Hamek, Pelayo, Beuscart-Zéphir, Anceaux, & Rogalski, 2005; Beuscart-Zéphir, et al., 2006). In analyzing the impact of synchronous vs. asynchronous cooperation between doctors and nurses in the processes for ordering medication and for patient administration, both of which were mediated by a paper-based document system, Beuscart-Zéphir et al. (2006) demonstrated that in this asynchronous cooperation, verbal communication was scarce and shared representations were weakened in comparison to situations of synchronous cooperation; orders, however, were more completely documented. The fact that orders were more comprehensive did not counteract difficulties: in self-confrontation interviews (see Mollo & Falzon, 2004): nurses pointed out that they suffered from a lack of knowledge regarding medical cases, in the particular context of medical decision making. The authors stress that this situation “makes doctors’ orders more difficult to interpret or to complete in case of non-exhaustiveness” (op. cit., p. S76).

In driving schools that took part in our study, we observed very few face-to-face interactions between trainers about their trainees. In this context, mediated tools and interactions with the trainee are the only means to allow elaboration of a diagnosis regarding trainee progression. This diagnosis directs the choice of didactical situations to foster trainee development.

Rogalski’s framework allows identification of the consequences of the context of a professional activity (i.e. splitting the training course of a single trainee between several trainers) on the elaboration of a representation of trainee progression and on didactic choices (the driving situations selected to favor the development of trainee competencies).

Before presenting two studies on activity of trainers based on these propositions we will describe a first study that aims to identify effects of splitting training courses between several driving trainers.

3. FIRST STUDY: DURATION OF TRAINING AND SPLIT TRAINING COURSE

This first study aimed to identify consequences of splitting training courses on training duration, according to the four steps of the French driving instruction curriculum.

The participants were 150 learner drivers (58 men and 92 women) from 13 driving schools in Paris. Participants ranged in age from 18 to 30, with a mean age of 22,2 years. They stated that they had never driven a car before this training. They were divided into four independent groups according to their advancement in the driver training course (table 1). Twenty seven participants had failed the examination for the driver’s license once: one

was in training step 1, five were in step 2, five in step 3 and sixteen in step 4.

Driver training steps					
Gender	Step 1	Step 2	Step 3	Step 4	Total
Men	11	25	12	10	58
Women	24	29	22	17	92
Total	35	54	34	27	150

Table 1. Number of the participants according to gender and driver training stages advance.

The participants were asked to complete a questionnaire at the end of one driving lesson.

We collected socio-demographic and driver training data, e.g. the step in the training curriculum, the number of hours spent in driving lessons, the number of trainers involved in the training and the number of trainers switches during training.

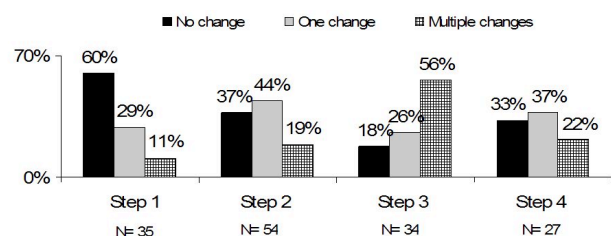


Figure 1. Proportion of trainees trained by more than one trainer.

Participants were trained by one to five different trainers. Thirty eight percent were trained by only one trainer, 35% by two trainers, 25% by three, 2% by four and 1% by five. Thus, most participants (63%) interacted with more than one trainer during training. However, learner drivers in early stages interacted more often with only one trainer (fig. 1). In contrast, subjects in the later steps were more often trained by several trainers and underwent “multiple switches” more often than subjects in the early stages did (fig. 2).

Firstly, our data were analyzed using an ANOVA with two independent variables: the step in driving training and the number of trainer switches. Results showed a significant effect of the driver training step ($F(3, 135) = 29.81, p < .001, \eta^2 = .40, \omega^2 = 1$).

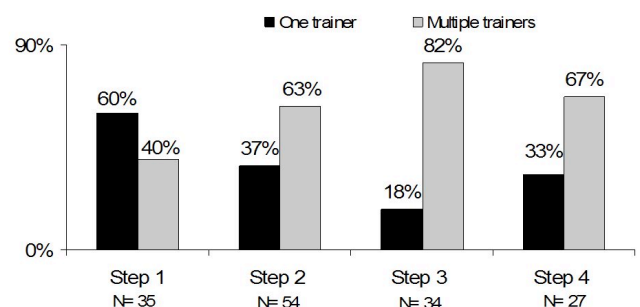


Figure 2. Proportion of shared training-course according to the 4 steps.

Trainees in the first step needed less hours of driving

lessons to validate this stage than those in step 2 ($p < .001$, Scheffé test), which in turn needed less hours than those in step 3 ($p < .001$). No significant difference was found between learner drivers in step 3 and those in step 4. There also was a significant main effect of the number of trainer switches ($F(2, 135) = 10.13$, $p < .001$, $\eta^2 = .13$, $\omega^2 = .98$). Trainees who had not undergone trainer switches took fewer hours of lessons than those who switched trainers only once ($p < .001$). In the same way, learners with multiple trainer switches took more hours of driving lessons than those who switched trainer only once ($p < .01$).

A second analysis was made through four ANOVAs (one for each step) with the number of trainer switches as an independent variable. Results showed a significant effect of trainer switches in the two first steps (respectively, $F(2, 111) = 6.41$, $p < .01$, $\eta^2 = .10$, $\omega^2 = .90$ and $F(2, 60) = 3.91$, $p < .05$, $\eta^2 = .12$, $\omega^2 = .68$). In the first step, trainees with no trainer switches took less hours of driving lessons than those who switched trainers once ($p < .01$) or several times ($p < .05$). No significant statistical difference was found between trainees who switched trainers once and those who switched several times ($p = .88$). In the second step, trainees without switches took less driving lessons hours than those who had had multiple trainer switches, in average ($p < .05$). No significant difference was found between the two latest steps according to the number of trainer switches.

Finally this study stresses that sharing duties in training a trainee driver is more frequent after the first stage of the training program. At the beginning, splitting a trainee's course between different trainers is a choice that is generally made to help manage organizational constraints. The consequences of this choice to split learners in the first two steps are an increase of the number of hours taken for lessons. When splitting is carried out at the end of a training course it seems to be more related to a didactical choice, for example in order to prepare the trainee for the driving license exam.

4. SECOND STUDY: USE OF THE COLLECTIVE TOOL

The second study was carried out in a driving school in a suburban town near Paris. In this school it was not possible to record driving lessons (except the briefing and the debriefing phases). Since analysis of the diagnosis regarding trainee progress, as well as related didactical choices, need to be supported by details and specific data (Vidal-Gomel & Rogalski, 2007; in press), and since in this training school face-to-face interactions between trainers were very few, we decided to present here the data collected on the use of the TRF.

We argue that if the TRF is an operational tool for asynchronous cooperation between trainers, then it should support elaboration of a representation about the present state of training progress and difficulties in order to choose relevant didactical situations, at the beginning of a lesson. So it should be used mostly to mediate

interactions between the previous and current trainers. At the end of the lesson, comments written in the TRF should be directed both to the trainee and to the following trainer.

The use of the TRF and information written therein was analyzed during 3 phases of the lesson: the briefing phase, the driving session phase, and the debriefing phase.

— Briefing phase: The car was stopped. The trainer gathered information about trainee progress, elaborated a diagnosis about this progress, and took a preliminary decision about what should be done in the driving session. During this phase, the trainer could look at the validation of various steps and comments (texts and sketches) made in previous lessons (by himself or other trainers) in the TRF.

— Driving session phase: The trainee drove. The trainer gathered information about evolutions in the driving environment, about the trainee's driving activities, elaborated an on-line diagnosis and took decisions regarding trainee guidance. During this phase, the trainer could gather information, write comments, or validate steps in the TRF.

— Debriefing phase: The car was stopped. The trainer commented on the driving session: he commented difficulties observed during the session, explained driving procedures, drew sketches, etc.; he also announced the objectives of the next lesson. During the debriefing phase, the trainer had to indicate the steps validated in the lesson, within the TRF. He could also write comments or draw sketches in the TRF.

In this exploratory study, two experienced trainers were observed (named P. and D.), with similar competencies (both were considered efficient trainers by their colleagues and hierarchy), in a driving school where collective activity was the general rule. Eight trainees agreed to be observed, all of them young (18 to 24 years old), with diversity in their level of progress (in terms of the number of hours' driving experience as well as the nature of acquired driving competencies).

Table 2 presents the trainees: gender, level of driving experience (number of hours' training), and validated steps. The coding Di refers to D. being the trainer in the session i, and Pi to P in session i (i being the number of the observed session). One trainee was always followed by the same trainer (these were respectively noted P1 and D1); this enabled us to contrast P1 and D1 with other cases involving a collective dimension in trainer activity. Respectively P4 and D4 was the least familiar trainee for each trainer.

There were two noteworthy points: P4 presented a problem of mobility with her right ankle, which accelerator and brake. D4 had recently failed her driving test and had had a previous lesson with another trainer (i.e. other than P. and D.).

Code	Gender	Validated steps	Number of hours of driving
P1	M	1	8
P2	F	1	19
P3	F	1	25
P4	F	-	12
D1	F	1 & 2	22
D2	F	1	18
D3	M	1 & 3	19
D4	F	2 & 3	40

Table 2. Characteristics of the trainees, respectively for P. and for D.

There was no direct relationship between the number of driving hours and the validated steps. Secondly, the validated steps did not strictly conform to usual progression, as prescribed in the French driver training curriculum, and reported in the TRF (table 2). This means that steps in the TRF cannot constitute a sufficient reference for asynchronous cooperation between trainers: validation through steps seems to constitute a global cue about trainee progress.

The briefing phase was short (3 to 8 minutes), very few questions were asked on previous tasks (D. asked a question to D1 and D4), and there were few conversation turns (1 to 8), except for P4: the briefing went on for 15 minutes, there were 11 questions to the trainee, and exchanges included 69 speaking turns.

During the briefing phase, the two trainers used the TRF differently: P. used the TRF from the very beginning of the briefing, except in the case of P4 (he used it at the 37th conversation turn): for this trainee presenting a specific problem, he first had a face-to-face conversation with the previous trainer, and preferred direct interaction with the trainee about her progress and difficulties, before reading the TRF. On the contrary D. first interacted with D1, D2 and D4 and used the TRF later, except with D3 with whom he used the TRF immediately.

		P.	D.	Total
Briefing phase	He writes	1	2	3
	He reads	2	1	3
	He reads and comments	3	3	6
Driving session	He writes	14	9	23
	He reads	12	11	23
	He reads and comments		5	5
	He writes schemata and explains	2*	1	3
	He reads TRF of the next trainee **	2	0	2
Debriefing phase	He does not use the TRF	2***	0	2
	He reads and comments	0	4	4
	He writes and comments	1	0	1

* Other sketches was written in a personal book. ** One of them is P 2.

*** We only observed 3 out of 4 debriefings carried out by P (He asked us to stop our observations because of the negative comments he had to express to a trainee).

Table 3. The use of the TRF by the trainers during the three phases

During the driving session, we observed various uses of the TRF: 1) Written information intended to prepare the debriefing phase interaction with the trainee; these “en route” comments were the most numerous (12 for P. and 9 for D., table 3); 2) The trainer asked the trainee to stop the car, drew a sketch on TRF and used it to explain specific driving issues (3 for P. and 1 for D.). 3) The trainer read information in the TRF: with no comment to the trainee (12 for P. and 11 for D.) or with comments to the trainee (5 for D.). The main use of the TRF was directed towards the trainer himself, and helped him memorize noteworthy elements, and eventually comment them in the debriefing phase. This interpretation is consistent with the use of TRF by D. during the debriefing phase (table 3).

During the driving session, the TRF seemed to be less used in direct didactical interactions with the trainee: comments and sketches addressed to the trainee were less numerous.

In order to complement our analysis of the use of the TRF, we considered that during debriefing, oral comments made by trainers were only addressed to trainees, whereas written comments (on the TRF) were also possible resources for asynchronous communication between trainers. Discrepancies between trainers’ oral debriefing and their written comments could then be viewed as cues of a single dominant orientation in the use of the TRF. Differences in expressing comments can inform about how a trainer took into account the informational needs of his following colleague. Two elements were considered: 1) the difference between the number of oral and written comments, and 2) precisions or ambiguities in the formulation itself.

In terms of trainers’ total number of comments, there was no real difference between oral and written comments (table 4): the TRF might therefore constitute a significant source of information.

Trainer	Oral comments	Written comments
P.*	13	11
D.	14	19

*We only observed 3 debriefing out of 4.

Table 4. Number of trainers’ oral and written comments during the debriefing phase.

However, the terms used in written comments were not devoid of ambiguity. For each trainer, five cases of ambiguous formulations were observed. We identified them, considering that written comments were addressed to the next trainer. Those ambiguities mainly concerned trainee activity (7 on 10) on a variety of issues (taking information, analyzing information, anticipating, etc.). We defined two types of ambiguities:

- The first involved inaccuracies regarding what had been done and what remained to do. For instance, “motorway entrances should be studied again” is a clear indication for a future didactical objective,

whereas “motorway entrances” alone is ambiguous.

- The second relates to how the following trainer may interpret a comment in an operational didactical way. The activity referred to in the comment “let him take the time to read road signs” is clear, while “more checking” might refer to a recent acquisition as well as to a deficiency in information gathering.

With the same option, we also identified more useful comments for the next trainer, with differences between the two observed trainers: The dynamics of trainees’ knowledge acquisition was more often expressed by P. (7 occurrences), such as “roundabouts in progress”, “motorway exit not yet mastered” and “road position is still uncertain”. D. more often used indications about what tasks should be performed in the future lesson (“should be studied again: motorway entrance”) and used few linguistic cues of progression (“it’s better but still some difficulties in remaining attentive”).

This second study stresses that the use of the collective tool (the TRF) is different between the two trainers. But it stresses also that the TRF is a mediation tool with various objectives: it mediates relations between trainer and trainee with didactical objectives during the lesson (when the trainer draws and explains sketches for example) and after the lesson (the trainee may read trainer comments), for the trainer himself (when, during the lesson, he reads the TRF of the next trainee or when he writes comments within to prepare the debriefing phase) and with other trainers (some comments seem to be directed toward the trainee’s next trainer). Finally ambiguities observed in written comments can be interpreted within this frame: they can be comments meant for the trainer himself, written in a collective space.

5. THIRD STUDY: DIAGNOSES BY TRAINERS AND SPLIT TRAINING-COURSE

This last study focused on trainer diagnosis according of knowledge of the trainee’s progression. We analyzed the effect of splitting a trainee’s course, on trainer diagnosis. The trainer had to elaborate a diagnosis on the development and evolution of trainee competencies, in order to choose didactical driving situations that could foster this development.

The study was conducted in a driving school near Dijon (Laumond, 2003). It is a built-up area similar to a suburban town.

Trainers	Trainees	Knowledge of trainee's progression	Gender	Number hours	Steps
TT1	A	U	F	> 15h	4
	B	U	M	<10h	1
TT2	A	U	M	> 15h	3
	B	U	M	10-15h	2
ET1	A	K	F	10-15h	2
	B	K	F	<10h	2
ET2	A	K	F	<10h	1
	B	K	M	10-15h	2
NT1	A	U	M	<10h	2
	B	U	F	<10h	2
NT2	A	U	F	10-15h	2
	B	U	F	<10h	1

Table 5. Characteristics of trainees participating to the third study.

Table 5 presents data regarding the trainee population: gender, number of hours of driving experience, stages of the French driver-training curriculum. The coding TT refers to a trainer for driving trainers, ET to an experienced trainers (more than 5 years of experience) and NT to a novice (we observed them during their first year). The coding K. (known trainee) refers to a trainee followed by the same trainer during his whole training course, and U. (unknown) to a trainee which was trained for the first time by the trainer in question.

The trainers we observed used the TRF in a very different way than those observed in the previous study. Here, most trainers also used a personal booklet in which they wrote comments and drew sketches to give the trainee some explanations. We also observed that trainers of driving trainers did not write comments at the end of the lesson. In one case, the trainee himself wrote the comments. In that case, the use of the collective tool was less meant for the trainer himself, but it did not seem to be systematically used as a collective tool either.

In this study, differentiation of the briefing phase and of the driving session phase was more difficult. In some cases we observed an intermediary phase: the trainer did not announce the contents of the lesson, but suggested suspending his decision, e.g. in lesson c: he said “What I suggest is to observe you for 5 or 10 minutes to see how you manage this and after that, we’ll decide what we will work on together”. We analyzed the organization of the lesson, the diagnosis and related decision depending on the new phase, the level of trainer experience and his level of knowledge of the trainee.

		Briefing phase	Intermediate phase	Driving session phase	Debriefing phase
Novice trainers	NT1A	0:04:45	0:14:59	0:33:16	0:02:13
	NT1B	0:05:00	0:13:45	0:35:10	0:06:05
	NT2A	0:04:19	0:18:29	0:36:31	0:05:00
	NT2B	0:03:50	0:25:55	0:30:10	0:01:00
Experienced trainers	ET1A	0:08:30		0:43:00	0:08:30
	ET1B	0:01:35		0:52:05	0:06:20
	ET2A	0:01:00		0:51:10	0:02:45
	ET2B	0:01:41		0:48:19	0:03:00
Trainers of tainers	TT1A	0:03:20	0:22:06	0:27:59	0:06:35
	TT1B	0:05:30	0:13:35	0:41:15	0:07:00
	TT2A	0:05:55	0:27:15	0:22:15	*
	TT2B	0:06:10	0:18:45	0:20:35	0:14:30

*Data non available.

Table 6. Duration of phases and TRF use.

The intermediate phase only existed when the trainee was not known to the trainer. The intermediate phase took an important part of the lesson (20% to 49 % of the total duration of the lesson). The duration of the briefing phase increased (except for ET1A, table 6) and the driving session phase decreased in length, compared to lessons with a known trainee. The organization of the lesson is altered depending on the trainer's knowledge of the trainee, whatever the trainer's level of experience may be.

The decision to suspend the didactical choice was announced to the trainee at the beginning of the briefing phase (after 2 or 3 minutes, table 7).

		Time before decision		
		Conversation turns before the first decision	Announcement of the adjournment	Announcement of the didactical choice
Novice trainers	NT1A	25	0:03:20	0:15:00
	NT1B	18	0:02:20	0:12:00
	NT2A	13	0:02:30	0:22:00
	NT2B	17	0:03:00	0:22:10
Experienced trainers	ET1A	1	-	0:00:50
	ET1B	5	-	0:01:00
	ET2A	1	-	0:00:30
	ET2B	8	-	0:00:50
Trainers of tainers	TT1A	13	0:01:30	0:12:00
	TT1B	30	0:03:55	0:14:20
	TT2A	22	0:03:00	0:23:30
	TT2B	30	0:03:20	0:19:45

Table 7. Conversation turns and time needed to take a didactical decision at the beginning of the lesson.

The intermediate phase was systemically composed of two parts: firstly the trainer observed the trainee driving for 5 or 10 minutes. Secondly, the car was stopped and a debriefing was carried out. The trainer explained the difficulties he had noticed and announced the content of the lesson.

When the trainee was not known to the trainer, the diagnosis could not be carried out based on the collective tool and on interaction with the trainee, although we did

observe an increase in the number of conversation turns (table 7). The diagnosis required personal observation of the trainee's driving. This is expressed by the duration before announcing the didactical choice (table 7).

The driving lessons observed concerned a majority of trainees who had driven less than 15 hours and who had only validated one or two steps (table 5). So it was not possible to analyze the relationship between asynchronous cooperation, its effects on trainers' diagnosis and the development of trainee competencies.

6. DISCUSSION AND CONCLUSION

This paper aimed to analyze the consequences of splitting a training course between several trainers, on the duration of training and on the activity of trainers, based on three studies carried out in various driving schools.

Splitting a training course is a decision that can help work organization in a training school because it simplifies lesson planning. It is also a didactical decision: at the end of the course itself, being trained by a new trainer might facilitate preparation of the license exam. When they occur during the first two steps of the driver-training course, multiple switches of trainers increase course duration. The work organization chosen in the driving school influences training. It also influences trainers' activity.

Rogalski's framework (2003; 2005), which focuses on the activity of trainers at work, allowed us to identify the consequences of this work organization on two levels of trainer activity: the diagnosis of trainee progression and the related didactical decision regarding the contents of the lesson, which integrates trainers' representation of the development of trainee driver competencies and of the effects of his actions on this development process.

We analyzed these, firstly considering that splitting a same trainee between several trainers who have to act on this development led to a case of asynchronous cooperation which was mediated by a specific tool, the TRF; and secondly focusing on the elaboration of the diagnosis regarding trainee progression.

In the two driving schools observed, the use of the TRF was diverse. This tool was designed for communication between trainers. In one school it was also used as a tool to help trainers memorize observations of trainee driving; the fact that such an use was made in the context of driving and directed toward the trainer himself might contribute in creating ambiguity for collective use: what is written for oneself is not always understandable by anyone else and, in the TRF's present form, a single space is dedicated to both individual and collective use. It was also used as a tool for mediation between trainee and trainer in didactical interactions during the lesson. In the second school, the TRF was not systematically used as a support for the comments trainers addressed to themselves or for drawing sketches to give explanations to the trainee. Most trainers choose their personal booklet. In this case, the use of the TRF as communication tool between trainers involved in

asynchronous cooperation seems to be less problematic. But we also observed that expert trainers (trainers of trainers) did not write comments in the TRF at the end of the lesson. These results contradict Beuscart-Zéphir *et al.* observations (2006). In their study, written orders were more comprehensively documented in asynchronous situations than in synchronous situations. Their results indicate that operators took into account the difficulty of asynchronous situations. Was this not the case for driving trainers?

When a trainee was confronted to a particular difficulty —e.g. in the second study—, the previous trainer and present trainer discussed the case face-to-face before the lesson took place, and dedicated more time to direct interaction with the trainee during the briefing phase: direct interactions were privileged compared to a TRF-mediated relationship. This result converges with research stressing that face-to-face situations favor the efficiency of cooperation compared to mediated situations (Karsenty, 2000; Navarro, 2001; Hamek *et al.*, 2005).

Finally, it seems that TRF was not systematically used as a collective tool to mediate interactions between trainers. One interpretation is that driving trainers knew that the collective tool and the interactions with the trainee are not sufficient resources to elaborate a diagnosis of trainee progress and a related didactical decision. They knew that the next trainer would need to observe the trainee drive at the beginning of the lesson. Splitting a training course is a work organization decision that influence trainers' diagnosis when they have to train an unknown trainee— i.e. whose progress they have not followed in the previous lesson. In this case, they are not able to elaborate a diagnosis based on interactions with the trainee and with the RTF. They need first to suspend the diagnosis, as well as to announce the didactic content of the lesson, and must first observe the trainee drive. Lesson organization is altered and the trainee spends less time driving in a real training situation: i.e. a situation chosen by the trainer according to the current state of his competencies, in order to favor their development.

Based on these three studies two propositions can be put forth: the first concerns the work organization in driving schools and the second concerns training curriculum for driving trainers.

A first proposal, concerning driver-training school organization involves avoiding trainer-switching during the first two steps of the training course. This could be complemented by organizing collective reunions to facilitate face-to-face interactions between trainers and discussions about shared trainees and their progress. In the schools we observed, trainers did not have sufficient time to really interact with their colleagues.

A second proposal concerns the content of trainer training programs. In the current international debate on training for driving trainers, their work activity is considered as an individual one (Merit, 2005; Rismark & Solvberg, 2007; Groeger & Clegg, 2008). Training future

trainers to the collective aspects of their work seems to be a requirement. This could be done during their training period in driving school with guidance from their trainer or based on the TRF. For example, it could be proposed to view a trainee's TRF at various moments of the training course, using it to identify what questions should be asked to the trainee in the briefing phase and what elements of his driving activity should be observed to elaborate a diagnosis on his progression and choose relevant didactical situations. Training on these aspects could be useful to decrease the duration of the intermediate phase observed when the training course is shared between different trainers.

Finally, to contribute to the design of a collective tool to better support trainers' collective activity, more detailed data must be collected regarding the use of the TRF and about trainers informational needs regarding trainee progression in order to elaborate a diagnosis and identify relevant didactical situations.

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